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CLAIMS

1. Drive means for adjusting the relative phase shifts produced by a plurality of phase shifters connected to an array of radiating elements, said drive means including:

first means for moving a first portion of a first phase shifter relative to a second portion of said first phase shifter to vary the phase difference between output signals from the first phase shifter; and

second means for moving a first portion of a second phase shifter relative to a second portion of said second phase shifter to vary the phase difference between output signals from the second phase shifter, wherein the second phase shifter is fed from an output of the first phase shifter and the degree of movement of the second means is dependent upon the degree of movement of the first means.

2. Drive means as claimed in claim 1 wherein movement of the second means causes simultaneous movement of a first portion of a third phase shifter with respect to a second portion of the third phase shifter, wherein the third phase shifter is fed from an output of the first phase shifter.

3. Drive means as claimed in claim 2 wherein the outputs of the second and third phase shifters are connected to radiating elements so as to produce a beam which tilts as the first and second means adjust the phase shifters.

4. Drive means as claimed in claim 2 or claim 3 wherein movement of the first portion of the first phase shifter a first distance relative to the second portion of the first phase shifter results in relative movement between first portions of the second and third phase shifters relative to second portions of the second and third phase shifters of about twice the first distance.

5. Drive means as claimed in any one of the preceding claims wherein the first means includes a gear wheel which drives a rack connected to the first portion of the first phase shifter, arranged so that rotation of the first gear wheel causes the first portion of the first phase shifter to move relative to the second portion of the first phase shifter.

6. Drive means as claimed in claim 5, when dependent upon any one of claims 2 to 4, wherein the second portion of the first phase shifter is mounted to a carriage and the outputs of the first phase shifter are connected to inputs of the second and third phase shifters by push rods so that movement of the second portion of the first phase shifter moves the first portions of the second and third phase shifters with respect to the second portions of the second and third phase shifters.

7. Drive means as claimed in claim 5 or claim 6, when dependent upon any one of claims 2 to 4, wherein a second gear is provided, driven with the first gear, which drives a rack connected to the second part of the first phase shifter so that rotation of the second gear causes movement of the first portion of the second and third phase shifters relative to the second portions of the second and third phase shifters.

8. Drive means as claimed in claim 7 wherein the ratio between the first and second gear wheels is about 3:1.

9. Drive means as claimed in any one of claims 1 to 4 wherein the drive means includes a shaft and said first means includes a first threaded portion provided on said shaft and a first cooperating threaded member connected to the first portion of the first phase shifter, the second means includes a second threaded portion provided on said shaft and a second cooperating threaded member connected to the first portion of the second phase shifter, the arrangement being such that rotation of the shaft causes the first portion of the first phase shifter to move relative to the second portion of the first phase shifter at a rate that is a multiple of the movement of the first portion of the second phase shifter relative to the second portion of the second phase shifter.

10. Drive means as claimed in claim 9 wherein the multiple is about 2.

11. Drive means as claimed in claim 9 or claim 10 wherein the second threaded member is connected to the second portion of the first phase shifter and moves the first portion of the second phase shifter via a push rod.

12. Drive means as claimed in claim 11 wherein the push rod is a coaxial line connecting an output from the first phase shifter to the input to the second phase shifter.

13. Drive means as claimed in any one of claims 9 to 12 including a third phase shifter fed from a second output of the first phase shifter via a push rod which

moves a first portion of the third phase shifter in unison with the first portion of the second phase shifter.

14. An antenna system comprising one or more antenna, each including electromechanical means for varying the downtilt of the antenna beam; and

a controller, external to the one or more antenna, for supplying drive signals to the electromechanical means for adjusting downtilt.

15. An antenna system as claimed in claim 14 wherein the antenna system comprises a plurality of antenna.

16. An antenna system as claimed in claim 14 or claim 15 wherein the electromechanical means varies the downtilt of each antenna beam by mechanically adjusting one or more phase shifter.

17. An antenna as claimed in claim 16 wherein the one or more phase shifter may be continuously adjusted to continuously vary the phase shift over a permitted range.

18. An antenna system as claimed in any one of claims 14 to 17 including means to monitor the degree of phase shift of a phase shifter of each antenna to determine the degree of downtilt of each antenna beam and for supplying such information to the controller.

19. An antenna system as claimed in claim 18 wherein the controller stores the degree of downtilt of each antenna of the system in memory.

20. An antenna system as claimed in any one of claims 14 to 19 wherein the controller includes a modem to enable communication of data and commands

between the antenna system and a central control means.

21. A communications system comprising a plurality of antenna systems as claimed in any one of claims 14 to 20 located at a plurality of sites, each controller being responsive to commands sent from a central control means to vary the downtilt of the beam of each antenna of the antenna system.